

Serial No.: 08/955,373

Atty. Docket No.: 162/P58774US3

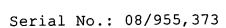
--13. A method for the preparation of a modified self-protein derived from an animal species, including humans, and capable of inducing antibody response against the corresponding unmodified self-protein following administration of said modified self-protein to the animal species, which comprises

substituting, by molecular biological means, one or more peptide fragments of the self-protein by a corresponding number of peptides each containing at least one immunodominant T-cell epitope which is foreign to the animal species,

said substitution being carried out so as to essentially preserve the overall tertiary structure of the unmodified self-protein,

and confirming that the modified self-protein induces production of antibodies reactive with the unmodified self-protein in the animal species.

14. The method according to claim 13, wherein said immunodominant foreign T-cell epitope is inserted so as to preserve flanking regions from the original self-protein on both sides of the T-cell epitope.



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15. The method according to claim 13, wherein said immunodominant T-cell epitope originates from tetanus toxoid or diphtheria toxoid.

16. An immunogenic composition which comprises

at least one modified self-protein which has been modified according to the method of claim 13; and

at least one immunologically acceptable adjuvant.

- 17. The immunogenic composition of claim 16, wherein the adjuvant is selected from the group consisting of calcium phosphate, saponin, quil A and biodegradable polymers.
- 18. The immunogenic composition according to claim 16, wherein the modified self-protein is fused to at least one suitable, immunologically active cytokine.
- 19. The immunogenic composition according to claim 18, wherein the immunologically active cytokine is selected from the group consisting of GM-CSF and interleukin 2.



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- 20. The immunogenic composition according to claim 18, wherein the modified self-protein is a modified cytokine selected from the group consisting of modified TNF- α , modified TNF- β , and modified y-interferon.
- 21. The immunogenic composition according to claim 18, wherein the modified self-protein is modified IgE.
- 22. A method for treating or ameliorating cachexia in an animal, including a human being, in need thereof, the method comprising administering, to the animal, an immunogenically effective amount of an immunogenic composition according to claim 20 which induces antibodies against TNF- α or γ -interferon.
- 23. A method for treating or ameliorating allergy in an animal, including a human being, in need thereof, the method comprising administering, to the animal, an immunogenically effective amount of an immunogenic composition according to claim 21.

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- 24. A method for treating or ameliorating chronic inflammatory disease in an animal, including a human being, in need thereof, the method comprising administering, to the animal, an immunogenically effective amount of an immunogenic composition according to claim 20.
- 25. A method for treating or ameliorating diabetes mellitus in an animal, including a human being, in need thereof, the method comprising administering, to the animal, an immunogenically effective amount of an immunogenic composition according to claim 20 which induces antibodies against $TNF-\alpha$.
- 26. A method for inducing antibody production in an animal against a self-protein of that animal, that method comprising administering, to the animal, an immunogenically effective amount of an immunogenic composition according to claim 16.
- 27. A modified self-protein which has been modified according to the method of claim 13.